PATENT
Attorney Docket No. 212241

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ts'o et al.

Application No. 09/888,164

Filed: June 22, 2001

For: LIGANDS TO ENHANCE CELLULAR UPTAKE OF BIOMOLECULES

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, D.C. 20231

Pursuant to 37 CFR 1.97 and 1.98, the references listed on the enclosed Form PTO-1449 and/or Substitute Form PTO-1449 ("Form 1449") are submitted for consideration by the Examiner in the examination of the above-identified patent application.

The full consideration of the references in their entirety by the Examiner is respectfully requested and encouraged. Also, it is respectfully requested that the references be entered into the record of the present application and that the Examiner place his or her initials in the appropriate area on the enclosed Form 1449, thereby indicating the Examiner's consideration of each of the references.

The submission of the references listed on the Form 1449 is for the purpose of providing a complete record and is not a concession that the references listed thereon are prior art to the invention claimed in the patent application. The right is expressly reserved to establish an invention date earlier than the above-identified filing date in order to remove any reference submitted herewith as prior art should it be deemed appropriate to do so.

Further, the submission of the references is not to be taken as a concession that any reference represents art that is relevant or analogous to the claimed invention. Accordingly, the right to argue that any reference is not properly within the scope of prior art relevant to an examination of the claims in the above-identified application is also expressly reserved.

The Information Disclosure Statement is being filed:

☒ **within** any one of the following time periods: (a) within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d); (b) within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 of an international application; (c) before the mailing date of a first Office Action on the merits; or (d) before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

☐ **after** (a), (b), (c) or (d) above, but before the mailing date of a final action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and includes *one* of:

☐ the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below).

or

☐ the fee of $180 set forth in 37 CFR 1.17(p) (see "Fees" below).

☐ **after** the mailing date of a final action under 37 CFR 1.113 or a Notice of Allowance under 37 CFR 1.311, or an action that otherwise closes prosecution in the application, and on or before payment of the issue fee, and includes the Statement under 37 CFR 1.97(e) (see "Statement under 37 CFR 1.97(e)" below), and the fee of $180 as set forth in 37 CFR 1.17(p) (see "Fees" below).

☐ **after** the mailing date of a Notice of Allowance under 37 CFR 1.311, and on or before payment of the issue fee, and **within** thirty days of receiving each item of information contained in the Information Disclosure Statement, and includes the Statement under 37 CFR 1.704(d) (see "Statement under 37 CFR 1.704(d)" below), and the fee of $180 as set forth in 37 CFR 1.17(p) (see "Fees" below).

NOTE: This is for original applications except applications for a design patent, filed on or after May 29, 2000, wherein a paper containing only an Information Disclosure Statement in compliance with 37 CFR 1.97 and 1.98 is being filed.

Copies of the References

☒ Copies of the references listed on the enclosed Form 1449 are enclosed herewith. Attached to each reference not in the English language is a concise explanation of the relevance pursuant to 37 CFR 1.98(a)(3).

☐ A copy of the foreign search report is enclosed herewith.

☐ The references listed on the enclosed Form 1449 were previously identified in the parent application(s) of the present application, and copies of the references were furnished at that time. Accordingly, additional copies of the references are not submitted herewith, so as not to burden the file with duplicate copies of references. The Examiner is respectfully requested to carefully review the references in accordance with the requirements set out in the Manual of Patent Examining Procedure. In accordance with 37 CFR 1.98(d), the details of the parent application(s) relied upon for an earlier filing date under 35 USC 120 in which copies of the references were previously furnished are set out below:

U.S. APPLICATIONS		Status *(check one)*		
U.S. APPLICATIONS	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
1.				
2.				
3.				

Statement under 37 CFR 1.97(e)

☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than three months prior to the filing of the Information Disclosure Statement.

☐ The **undersigned** hereby states that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

Statement under 37 CFR 1.704(d)

☐ The **undersigned** hereby states that each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

Fees

☒ **No fee** is owed by the applicant(s).
☐ The **IDS Fee of $180** under 37 CFR 1.17(p) is enclosed herewith.

Method of Payment of Fees

☐ Attached is a check in the amount of $.
☐ Charge Deposit Account No. 12-1216 in the amount of $. (A duplicate copy of this communication is enclosed for that purpose.)

Authorization to Charge Additional Fees

☒ If any additional fees are owed in connection with this communication, please charge Deposit Account No. 12-1216. (A duplicate copy of this communication is enclosed for that purpose.)

In re Appln. of Ts'o et al.
Application No. 09/888,164

Instructions as to Overpayment

☒ Credit Account No. 12-1216.
☐ Refund

Carol Larcher, Reg. No. 35,243
LEYDIG, VOIT & MAYER, LTD.
Two Prudential Plaza, Suite 4900
180 North Stetson
Chicago, Illinois 60601-6780
(312) 616-5600 (telephone)
(312) 616-5700 (facsimile)

Date: January 28, 2002

CERTIFICATE OF MAILING

I hereby certify that this INFORMATION DISCLOSURE STATEMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service via Fist Class Mail to Addressee in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231

Date: 01-28-02

M:\Clients\CellWorks\1449 and IDS\212241IDS.doc

Please type a plus sign (+) inside this box →

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 6

Complete if Known	
Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

U.S. PATENT DOCUMENTS

Examiner Initials	Doc. No.	U.S. Patent Document Application or Patent Number	Kind Code	Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
	AA	4,415,732		Caruthers et al.	11/15/1983	
	AB	4,671,958		Rodwell et al.	6/9/1987	
	AC	4,680,338		Sundoro	7/14/1987	
	AD	4,725,677		Köster et al.	2/16/1988	
	AE	4,770,183		Groman et al.	9/13/1988	
	AF	4,827,945		Groman et al.	5/9/1989	
	AG	4,952,394		Senter	8/28/1990	
	AH	4,975,278		Senter et al.	12/4/1990	
	AI	5,006,652		Cullinan et al.	4/9/1991	
	AJ	5,010,176		Barton	4/23/1991	
	AK	5,017,693		Hylarides et al.	5/21/1991	
	AL	5,028,697		Johnson et al.	7/2/1991	
	AM	5,087,616		Myers et al.	02/11/1992	
	AN	5,094,849		Cullinan et al.	3/10/1992	
	AO	5,116,944		Sivam et al.	5/26/1992	
	AP	5,122,368		Greenfield et al.	6/16/1992	
	AQ	5,141,648		Hylarides et al.	8/25/1992	
	AR	5,141,739		Jung et al.	8/25/1992	
	AS	5,144,012		Johnson et al.	9/1/1992	
	AT	5,149,794		Yatvin et al.	9/22/1992	
	AU	5,169,933		Anderson et al.	12/8/1992	
	AV	5,248,492		Groman et al.	9/28/1993	
	AW	5,280,113		Rademacher et al.	1/18/1994	
	AX	5,284,646		Menz et al.	2/8/1994	
	AY	5,308,604		Sinn et al.	5/3/1994	
	AZ	5,336,506		Josephson et al.	8/9/1994	
	BA	5,342,607		Josephson	8/30/1994	
	BC	5,352,432		Menz et al.	10/4/1994	
	BD	5,393,737		Mayers et al.	2/28/1995	
	BE	5,433,955		Bredehorst et al.	7/18/1995	
	BF	5,457,187		Gmeiner et al.	10/10/1995	
	BG	5,478,576		Jung et al.	12/26/1995	
	BH	5,490,991		Enriquez et al.	2/13/1996	
	BI	5,492,821		Callstrom et al.	2/20/1996	
	BJ	5,495,006		Climie et al.	2/27/1996	
	BK	5,554,386		Groman et al.	9/10/1996	
	BL	5,563,250		Hylarides et al.	10/8/1996	
	BM	5,574,142		Meyer Jr. t al.	11/12/1996	
	BN	5,589,334		Coulie et al.	12/31/1996	
	BO	5,612,474		Patel	3/18/1997	
	BP	5,614,505		Gmeiner et al.	3/25/1997	
	BQ	5,622,929		Willner et al.	4/22/1997	
	BR	5,635,382		Low et al.	6/3/1997	

Examiner Signature		Date Considered	

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 Of 6

Complete if Known	
Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

U.S. PATENT DOCUMENTS

Examiner Initials	Doc. No.	U.S. Patent Document: Application or Patent Number	U.S. Patent Document: Kind Code	Name of Patentee or Applicant	Date of Publication	Filing Date If Appropriate
	BS	5,639,633		Callstrom et al.	6/17/1997	
	BT	5,646,298		Powell	7/8/1997	
	BU	5,663,321		Gmeiner et al.	9/2/1997	
	BV	5,665,358		Barton et al.	9/9/1997	
	BW	5,679,323		Menz et al.	10/21/1997	
	BX	5,681,811		Ekwuribe	10/28/1997	
	BY	5,700,921		Westling et al.	12/23/1997	
	BZ	5,700,922		Cook	12/23/1997	
	CA	5,741,900		Gmeiner et al.	4/21/1998	
	CB	5,773,435		Kadow et al.	6/30/1998	
	CC	5,789,248		Fodstad et al.	8/4/1998	
	CD	5,840,674		Yatvin et al.	11/24/1998	
	CE	5,846,728		Haralambidis et al.	12/8/1998	
	CF	5,880,097		Lyttle et al.	3/9/1999	
	CG	5,880,270		Berninger et al.	3/9/1999	
	CH	5,929,049		Singh et al.	6/27/1999	
	CI	5,981,507		Josephson et al.	11/9/1999	
	CJ	5,994,517		Ts'o et al.	11/30/1999	
	CK	6,005,094		Simon et al.	12/21/1999	
	CL	6,005,098		Hattori et al.	12/21/1999	
	CM	6,030,997		Eliat et al.	2/29/2000	
	CN	6,037,329		Baird et al.	3/14/2000	
	CO	6,063,604		Wick et al.	5/16/2000	
	CP	6,077,837		Kozak	6/20/2000	
	CQ	6,114,520		Hattori et al.	9/5/2000	
	CR	6,187,335		Brey et al.	2/13/2001	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Doc. No.	Foreign Patent Document: Office	Foreign Patent Document: Application or Patent Number	Foreign Patent Document: Kind Code	Name of Patentee or Applicant	Date of Publication	Translation: Yes	Translation: No**
	CS	EP	0 884 327	B1	Florence et al.	3/14/2001		
	CT	PCT	97/20563		Ts'o et al	6/12/97		
	CU	PCT	00/69473		Vera	11/23/2000		
	CV	PCT	01/32623	A1	Ruggner et al.	5/10/2001		
	CW							
	CX							

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation: Yes	Translation: No
	CY	AGRAWAL et al., "Oligodeoxynucleoside Phosphoramidates and Phosphorothioates as Inhibitors of Human Immunodeficiency Virus," *Proc. Natl. Acad. Sci. USA*, 85(19):7079-7083 (1988) Abstract Only.		

Examiner Signature		Date Considered	

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 6

Complete if Known

Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation Yes	Translation No
	CZ	AGRIS et al., "Inhibition of Vesicular Stomatitis Virus Protein Synthesis and Infection by Sequence-Specific Oligodeoxyribonucleoside Methylphosphonates," *Biochemistry*, 25: 6268-6275 (1986).	✓	
	DA	AKHTAR et al., "Stability of Antisense DNA Oligodeoxynucleotide Analogs in Cellular Extracts and Sera," *Life Science*, 49: 1793-1801, (1991).		
	DB	ALT et al., "Core Specific Antisense Phosphorothioate Oligodeoxynucleotides as Potent and Specific Inhibitors of Hepatitis C Viral Translation," *Arch. Virol*, 142: 589-599 (1997).		
	DC	ANDERSSON, "Reduction and Reoxidation of the Disulfide Bonds of Bovine Serum Albumin," *Archives of Biochemistry and Biophysics,"* 133: 277-285 (1969).		
	DD	ASAYAMA et al., "Synthesis Of Novel Polyampholyte Comb-Type Copolymers Consisting Of A Poly (L-Lysine) Backbone And Hyaluronic Acid Side Changes For A DNA Carrier," *Bioconjugate Chem.*, 9: 476-481 (1998).		
	DE	BIDER et al., "Ligand-induced Endocytosis of the Asialoglycoprotein Receptor: Evidence for Heterogeneity in Subunit Oligomerization," *FEBS Lett.* 434: 37-41 (1998).		
	DF	BIESSEN et al., "Cholesterol Derivative of a New Triantenarry Cluster Galactoside Directs Low- and High-density Lipoproteins to the Parenchymal Liver Cell," *Biochem. J.*, 302: 283-289 (1994).		
	DG	BIESSEN et al., "Synthesis of Cluster Galactosides with High Affinity for the Hepatic Asialoglycoprotein Receptor," *J. Med. Chem.*, 38: 1538-1546 (1995).		
	DH	BIESSEN et al., "Cholesterol Derivative of a New Triantenarry Cluster Galactoside Lowers Serum Cholesterol Levels and Enhances Secretion of Bile Acids in the Rat," *Circulation*, 91: 1847-1854 (1995).		
	DI	BIESSEN et al., "Targeted Delivery of Oligonucleotides to Parenchymal Liver Cells in Vivo," *Biochem. J.*, 340: 783-792 (1999).		
	DJ	BIESSEN et al., "Targeted Delivery of Antisense Oligonucleotides to Parenchymal Liver Cells in Vivo,"*Methods in Enzymology*, 314: 324-342 (1999).		
	DK	BIESSEN et al., "Novel Hepatotrophic Prodrugs of the Antiviral Nucleoside 9-(2-Phosphonylmethoxyethyl) Adenine with Improved Pharmacokinetics and Antiviral Activity," *FASEB J.*, 14: 1784-1792 (Sept. 2000).		
	DL	BONFILS et al., "Drug targeting: Synthesis and Endocytosis of Oligonucleotide-Neoglycoprotein Conjugates," *Nucleic Acids Res.*, 20(17): 4621-4629 (1992).		
	DM	BOUSSIF et al., "A Versatile Vector for Gene and Oligonucleotide Transfer into Cells in Culture and *in Vivo*: Polyethylenimine," *Proc. Natl. Acad. Sci. USA*, 92: 7297-7301 (1995).		
	DN	BRETON et al., "Production of Macrophage-derived Cytotoxic Factor by *N*-[3-[(Carbamoylmethyl)thio]propionylated] Neoglycoproteins," *Bioconjugate Chemistry*, 2: 16-18 (1991).		
	DO	BRUIX, "Treatment of Hepatocellular Carcinoma," *Hepatology*, 25: 259-262 (1997).		
	DP	BUNNELL et al., "Targeted Delivery of Antisense Oligonucleotides by Molecular Conjugates," *Somatic Cell and Molecular Genetics*, 18(6): 559-569 (1992).		
	DQ	CARUTHERS, "Chemical Synthesis of DNA and DNA Analogues," *Acc. Chem. Res.* 24: 278-284 (1991).		
	DR	CATTANEO-PANGRAZZI et al., "Cell-cycle Arrest and p53-independent Induction of Apoptosis in Vitro by the New Anticancer Drugs 5-FdUrd-*P*-FdCydOct and dCydPam-*P*-FdUrd in DU-145 Human Prostate Cancer Cells," *J. Cancer Res. Clin. Oncol.*, 126: 247-256 (May 2000).		
	DS	CHENG et al., "Characterization of an Antineoplastic Glucuronide Prodrug," *Biochem. Pharmacol.*, *58*: 325-328 (1999).		
	DT	CHIPOWSKY et al., "Synthesis of 1-thioaldosides Having an Amino Group at the Aclycon Terminal," *Carbohydrate Res.*, 31: 339-346 (1973).		

Examiner Signature		Date Considered	

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet	4	of	6

Complete if Known	
Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation Yes	Translation No
	DU	CHU et al., "Presentation of Ligands on Hydroxylapatite," *Bioconjugate Chem., 8: 103-105* (1997).		
	DV	CZERWINSKI et al., "Cytotoxic Agents Directed to Peptide Hormone Receptors: Defining the Requirements for a Successful Drug," *Proc. Natl. Acad. Sci. USA*, 95: 11520-11525 (1998).		
	DW	DUFF et al., "Intrabody Tissue-Specific Delivery of Antisense Conjugates in Animals: Ligand-Lihnker-Antisense Oligomer Conjugates," *Methods in Enzymology*, 313: 297-321 (1999).		
	DX	EICHLER et al., "Studies on the Uptake of Low Molecular Weight Monomeric Tris-galactosyl Conjugates by the Rat Liver," *Biochem. Pharmacol.*, 44(11): 2117-2122 (1992).		
	DY	FINDEIS et al., "Ligand-Based Carrier Systems for Delivery of DNA to Hepatocytes," *Methods in Enzymology, 247*: 341-351 (1994).		
	DZ	FINDEIS, "Stepwise Synthesis of a GalNAc-Containing Cluster Glycoside Ligand of the Asialoglycoprotein Receptor," *Int. J. Peptide Protein Res.*, 43: 477-485 (1994).		
	FA	FRANSSEN et al., "Hepatic and Intrahepatic Targeting of an Anti-Inflammatory Agent with Human Serum Albumin and Neoglycoproteins as Carrier Molecules," *Biochem. Pharmacol.*, 45(6): 1215-1226 (1993).		
	FB	GUPTA et al., "Synthesis of Neoglycopeptides and Analyses of their Biodistribution *In Vivo* to Identify Tissue Specific Uptake and Novel Putative Membrane Lectins," *Glycoconjugate J., 11*: 558-571 (1994).		
	FC	HANGELAND et al., "Cell-type Specific and Ligand Specific Enhancement of Cellular Uptake of Oligodeoxynucleoside Methylphosphonates Covalently Linked with a Neoglycopeptide, YEE(ah-GalNAc)$_3$," *Bioconjugate Chem.*, 6: 695-701 (1995).		
	FD	HARDY et al., "Different Modes of Ligand Binding to the Hepatic Galactose/*N*-Acetylgalactosamine Lectin on the Surface of Rabbit Hepatocytes," *Biochem.*, 24: 22-28 (1985).		
	FE	HUWYLER et al., "Receptor Mediated Delivery of Daunomycin Using Immunoliposomes: Pharmacokinetics and Tissue Distribution in the Rat," *JPET, 282*: 1541-1546 (1997).		
	FF	KRIEG et al., "Modification of Antisense Phosphodiester Oligodeoxynucleotides by a 5' Cholesteryl Moiety Increases Cellular Association and Improves Efficacy," *Proc. Natl. Acad. Sci. USA*, 90: 1048-1052 (1993).		
	FG	KUO et al., "Novel Systems for Controlled Delivery of Macromolecules," *Crit. Rev. Eukaryotic Gene Express.*, 6(1): 59-73 (1996).		
	FH	LEMAITRE et al., "Specific Antiviral Activity of a Poly(L-Lysine)-conjugated Oligodeoxyribonucleotide Sequence Complementary to Vesicular Stomatitis Virus N Protein mRNA Initiation Site," *Proc. Natl. Acad. Sci. USA*, 84: 648-652 (1987).		
	FI	LEE, "Synthesis of Some Cluster Glycosides Suitable for Attachment to Proteins or Solid Matrices," *Carbohydrate Research*, 67: 509-514 (1978).		
	FJ	LEE et al., "New Synthetic Cluster Ligands for Galactose/*N*-Acetylgalactosamine-Specific Lectin of Mammalian Liver," *Biochem.*, 23: 4255-4261 (1984).		
	FK	LEE et al., "Synthesis of 6'-Aminohexyl 2-Acetamido-2-D oxy-D-Galactoside Isomers and a Unique Isomerization Catalyzed by Ion Exchange Resin," *J. Carbohydrate Chemistry, 5(3)*: 343-357 (1986).		
	FL	LEE et al., "Binding Characteristics of *N*-Acetylglucosamine-Specific Lectin of the Isolated Chicken Hepatocytes: Similarities to Mammalian Hepatic Galactose/*N*-Acetylgalactosamin -Specific Lectin," *Biochem.*, 28: 8351-8358 (1989).		
	FM	LEE, "Binding Modes of Mammalian Hepatic Gal/CalNAc R ceptors," *Ciba Found. Symp.*, 145: 80-95 (1989).		

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 5 of 6

Complete if Known	
Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

Examiner Initials	Doc. No.	OTHER - NON PATENT LITERATURE DOCUMENTS Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation Yes	Translation No
	FN	LEE et al., "Ligand Structural Requirements for Recognition and Binding by the Hepatic Asialoglycoprotein Receptor," *Targeted Diagn. Ther.*, 4: 65-86 (1991).		
	FO	LEE, "Biochemistry of Carbohydrate-Protein Interaction," *FASEB J.*, 6: 3193-3200 (1992).		
	FP	LEE et al., "Facile Synthesis of a High-Affinity Ligand for Mammalian Hepatic Lectin Containing Three Terminal *N*-Acetylgalactosamine Residues," *Bioconjug. Chem.*, 8(5): 762-765 (1997).		
	FQ	LEE-YOUNG et al., "Neocglycoconjugates: Preparation and Application," *Acad. Press, Inc.*, 511-537 (1994).		
	FR	LEVIS et al., "Cellular Uptake of Oligodeoxyribonucleoside Methylphosphonates," *Antisense Research and Development*, 5: 251-259 (1995).		
	FS	LU et al., "Antisense DNA Delivery in Vivo: Liver Targeting by Receptor-Mediated Uptake," *J. Nucl. Med.*, 35: 269-275 (1994).		
	FT	MARSHALL et al., "Inhibition of Human Immunodeficiency Virus Activity by Phosphorodithioate Oligodeoxycytidine," *Proc. Natl. Acad. Sci. USA*, 89: 6265-6269 (1992).		
	FU	MARTINEZ-FONG et al., "Nonenzymatic Glycosylation of Poly-L-lysine: A New Tool for Targeted Gene Delivery," *Hepatology*, 20(6): 1602-1608 (1994).		
	FV	MERWIN et al., "Targeted Delivery of DNA using YEE(GalNAcAH)$_3$, A Synthetic Glycopeptide Ligand for the Asialoglycoprotein Receptor," *Bioconjugate Chem.* 5: 612-620 (1994).		
	FW	MIER et al., "Preparation and Evaluation of Tumor-Targeting Peptide-Oligonucleotide Conjugates," *Bioconjugate Chem.*, 11: 855-860 (Nov. – Dec. 2000).		
	FX	MILLIGAN et al., "Current Concepts in Antisense Drug Design," *Journal of Medicinal Chemistry*, 36(14): 1923-1937 (1993).		
	FY	O'CONNOR et al., "Biological Activity of a Novel Rationally Designed Lipophilic Thymidylate Synthase Inhibitor," *Cancer Chemother. Pharmacol.*, 34: 225-229 (1994).		
	FZ	OZAKI et al., "The Differences in Structural Specificity for Recognition and Binding Between Asialoglycoprotein Receptors of Liver and Macrophages," *Glycoconjugate Journal*, 12: 268-274 (1995).		
	GA	PÉRIGAUD et al., "Nucleoside Analogues as Chemotherapeutic Agents: A Review," *Nucleosides and Nucleotides*, 11(2-4): 903-945 (1992).		
	GB	PLANK et al., "Gene Transfer into Hepatocytes Using Asialoglycoprotein Receptor Mediate Endocytosis of DNA Complexed with an Artificial Tetra-Antennary Galactose Ligand," *Bioconjugate Chem.*, 3: 533-539 (1992).		
	GC	RANADE, "Drug Delivery Systems: 3A. Role of Polymers in Drug Delivery," *J. Clin. Pharmacol.*, 30: 10-23 (1990).		
	GD	RICE et al., "Defined Geometry of Binding between Triantennary Glycopeptide and the Asialoglycoprotein DNA of Rat Heptocytes," *J. Biol. Chem.*, 265(30): 18429-18434 (1990).		
	GE	RICE et al., "Interterminal Distance and Flexibility of a Triantennary Glycopeptide as Measured by Resonance Energy Transfer," *Biochem.*, 30: 6646-6655 (1991).		
	GF	RICHARDSON et al., "Potential of Low Molecular Mass Chitosan as a DNA Delivery System: Biocompatibility, Body Distribution and Ability to Complex and Protect DNA," *Intl. J. Pharm.*, 178: 231-243 (1999).		
	GG	ROBINSON et al., "Bioadhesive Polymers for Controlled Drug Delivery," *Annals New York Academy of Sciences*, 507: 307-314 (1987).		
	GH	ROHLFF et al., "A Novel, Orally Administered Nucleoside Analogu , OGT 719, Inhibits the Liver Invasive Growth of a Human Colorectal Tumor, C170HM2," *Cancer Res.*, 59: 1268-1272 (1999).		

Examiner Signature		Date Considered	

Substitute for form 1449A/B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 6 of 6

Compl te if Known	
Application Number	09/888,164
Filing Date	June 22, 2001
First Named Inventor	Ts'o et al.
Group Art Unit	
Examiner Name	
Attorney Docket Number	212241

OTHER - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Doc. No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number (s), publisher, city and/or country where published.	Translation Yes	Translation No
	GI	SCHWARZ et al., "Preparation, Antibacterial Effects and Enzymatic Degradation of 5-Fluorouracil Nucleosides," *Collection Czechoslov. Chem. Commun.*, 45: 3217-3230 (1980).		
	GJ	SETT et al., "Macrophage-Directed Delivery of Doxorubicin Conjugated to Neoglyoprotein Using Leishmaniasis as the Model Disease," *J. Infectious Diseases*, 168: 994-999 (1993).		
	GK	SHAW et al., "Modified Deoxyoligonucleotides Stable to Exonuclease Degradation in Serum," *Nuc. Acids Res.*, 19(4): 747-750 (1991).		
	GL	SMITH, "Amphipathic Enzyme-Polymer Conjugates," *Nature*, 262: 519-520 (1976).		
	GM	SMITH et al., "Oligonucleotide Labeling Methods 4 Difrect Labeling Reagents with a Novel, Non-Nucleosidic, Chirally Defined 2-Deoxy-β-D-Ribosyl Backbone," *Nucleosides & Nucleotides*, 15(10):1581-1594 (1996).		
	GN	STEIN et al., "Oligodeoxynucleotides as Inhibitors of Gene Expression: A Review," *Cancer Res.*, 48:2659-2668 (1988).		
	GO	TAKAKURA et al., "Drug Delivery Systems for Macromolecular Drugs," *Yakugaku Zasshi,* 116(7):519-532 (1996), Abstract Only.		
	GP	TOWNSEND, et al., "Binding of N-Linked Bovine Fetuin Glycopeptides to Isolated Rabbit Hepatocytes Gal/GalNAc Hepatic Lectin Discrimination between Galβ(1,4)GlcNAc and Galβ(1,3)GlcNAc in a Triantennary Structure," *Biochem.*, 25: 5716-5725 (1986).		
	GQ	TRERÉ et al., "The Asialoglycoprotein Receptor in Human Hepatocellular Carcinomas: Its Expression on Proliferating Cells," *British J. Cancer*, 81(3): 404-408 (1999).		
	GR	ULBRICH et al., "Synthesis of Biodegradable Polymers for Controlled Drug Release," *Annals New York Acad. Sci.*, 831: 47-56 (1997).		
	GS	VAN BERKEL et al., "The Effect of a Water-Soluble Tris-Galactoside-Terminated Cholesterol Dervative on the Fate of Low Density Lipoproteins and Liposomes," *J.Biol. Chem.*, 260(5): 2694-2699 (1985).		
	GT	WADHWA et al., "Targeted Gene Delivery with a Low Molecular Weight Glycopeptide Carrier," *Bioconjugate Chem.*, 6: 283-291 (1995).		
	GU	WADHWA et al., "Receptor Mediated Glycotargeting," *J. Drug Targeting*, *3*: 111-127 (1995).		
	GV	WALDNER et al., "Hydrophobic Effects in Duplexes with Modified Oligonucleotide Backbones and RNA," *Bioorganic & Medicinal Chemistry Letters,* 6(19): 2363-2366 (1996).		
	GW	WEIGEL et al., "Preparation of 6-Aminohexyl D-Aldopyranosides," *Carbohydrate Res.*, 70: 83-91 (1979).		
	GX	WOLFRUM et al., "Fatty acids and Hypolipidemic Drugs Rgulate Peroxisome Proliferator-activated Receptors Alpha- and Gamma-mediated Gene Expression Via Liver Fatty Acid Binding Protein: A signaling Path to the Nucleus," *Proc. Natl. Acad. Sci. USA*, *98(5)*: 2323-2328 (Feb. 2001).		
	GY	WONG et al., "Synthesis of D-galactosamine Derivatives and Binding Studies Using Isolated Rat Hepatocytes," *Carbohydrate Res.* 170: 27-46 (1987).		
	GZ	WU et al., "Targeted Delivery and Expression of Foreign Genes in Hepatocytes," *Targeted Diagnosis & Therapy*, 4: 127-149 (1991).		
	HA	ZAIA et al., "Inhibition of Human Immunodeficiency Virus by Using an Oligonucleoside Methylphosphonate Targeted to the *tat-3* Gene," *J. Virol.*, 62(10): 3914-3917 (1988).		

Examiner Signature		Date Considered	